

CLAIMS:

1. In combination with a vehicle wheel alignment system having a central processing unit for controlling the operation of the vehicle wheel alignment system, an improvement which comprises:

5 said central processing unit configured with at least one software object adapted to process data representative of voice audio input to identify one or more spoken commands;

wherein said central processing unit is responsive to said software object to control the operation of at least one component of said wheel alignment system in response to one or more spoken commands contained in said voice audio input.

2. The system of Claim 1 wherein said at least one software object is configured to utilize VoiceXML to process said data representative of said voice audio input to identify one or more spoken commands; and

wherein said at least one software object is further configured to utilize VoiceXML to translate said identified one or more spoken commands into operating instructions.

3. The system of Claim 1 wherein said central processing unit is responsive to said software object to control the operation of a display in response to one or more spoken commands contained in said voice audio input.

20 4. The system of Claim 3 wherein said voice audio input contains at least one request for information, and wherein said central processing unit is responsive to said software object to control the operation of said display to present said requested information.

5. The system of Claim 1 wherein said at least one software object is configured to parse data representative of voice audio input and to extract from said data one or more commands for said central processing unit.

6. The system of Claim 1 wherein each of said spoken commands are phonetically distinct.

7. The system of Claim 1 further including at least one microphone adapted to receive voice audio, said at least one microphone disposed remotely from an operator and configured to produce a signal representative of said received voice audio for communication to said central processing unit.

8. The system of Claim 1 further including:

a first microphone positioned to primarily receive voice audio, said first microphone configured to produce a first signal representative of received voice audio input;

a second microphone positioned to primarily receive ambient and transient background audio, said second microphone configured to produce a second signal representative of received ambient and transient background audio; and

an audio processor module configured to receive said first and second signals and to provide data representative of voice audio input to said central processing unit, said audio processor module further adapted to utilize said first signal and said second signal to clarify voice audio input.

9. The system of Claim 8 wherein said first and second microphones are mounted to a headset.

10. The system of Claim 8 wherein said first and second microphones are positioned to receive sounds from within a predetermined area.

11. The system of Claim 8 wherein said first and second microphones are unidirectional.

5 12. In combination with a vehicle wheel alignment system having a central processing unit for controlling the operation of the vehicle wheel alignment system, an improvement which comprises:

said central processing unit configured to identify one or more spoken commands from received voice audio input;

said central processing unit further configured to identify an operational context in which a voice audio input is received; and

wherein said central processing unit is responsive to said one or more identified spoken commands and to said identified operational context to control the operation of at least one component of said wheel alignment system.

13. In combination with a vehicle wheel alignment system having a central processing unit for controlling the operation of the vehicle wheel alignment system, an improvement which comprises:

said central processing unit configured to identify one or more spoken commands from received voice audio input;

20 a plurality of microphones, each of said microphones receiving sounds including operator voice audio, ambient background noise, and transient background noise, and each of said microphones configured to produce a signal representative of said received sounds; and

an audio processor module disposed between said central processing unit and said plurality of microphones, said audio processor module configured to receive and combine each of said signals from said plurality of microphones and to extract voice audio input from said combined signals to provide data representative of said voice audio input to said central processing unit.

14. The system of Claim 13 wherein said plurality of microphones defines a beam-forming microphone array.

15. The system of Claim 13 wherein said audio processor module is further configured to utilize said combined signals to track movement of an operator.

16. The system of Claim 13 wherein said plurality of microphones defines a blind source separation microphone array.

17. In combination with a vehicle wheel alignment system having a central processing unit for controlling the operation of the vehicle wheel alignment system, an improvement which comprises:

said central processing unit configured with at least one software object adapted to generate at least one voice audio output signal; and

wherein said central processing unit is responsive to said software object to communicate said generated voice audio signal to an audio output device.

18. A method for controlling a vehicle wheel alignment system having a central processing unit configured with at least one software object for processing voice audio signals, at least one alignment angle sensor, a display, and a microphone, comprising:

receiving, at said microphone, at least one voice audio command;

communicating said at least one voice audio command from said microphone to said software object;

processing, with said at least one software object, said communicated voice audio command; and

5 responsive to said processing of said voice audio command, said central processing unit performing one or more actions.

19. The method for controlling a vehicle wheel alignment system of Claim 18 wherein responsive to said processing of said voice audio command, said central processing unit presents alignment angle information to an operator on said display.

20. The method for controlling a vehicle wheel alignment system of Claim 18 wherein responsive to said processing of said voice audio command, said central processing unit presents alignment angle adjustment instructions to an operator on said display.

21. The method for controlling a vehicle wheel alignment system of Claim 18 wherein responsive to said processing of said voice audio command, said central processing unit directs at least one software object to generate a voice audio response for communication to an operator via an audio speaker.

22. The method for controlling a vehicle wheel alignment system of Claim 18 wherein the step of communicating further includes the step of clarifying said voice
20 audio command by reducing ambient noise and transient noise accompanying said voice audio command.

23. A method for controlling a vehicle wheel alignment system having a central processing unit configured for processing voice audio signals, at least one alignment angle sensor, a display, and at least one microphone, comprising:

receiving, at said at least one microphone, one or more voice audio commands;

communicating said one or more voice audio commands from said at least one microphone to said central processing unit;

processing said communicated one or more voice audio commands;

identifying a current operating context for said vehicle wheel alignment system;

associating one or more actions corresponding to said current operating context with said communicated one or more voice audio commands; and

responsive to said association, said central processing unit performing said one or more actions.

24. A method for controlling a vehicle wheel alignment system having a central processing unit configured with at least one software object for processing voice audio signals, at least one alignment angle sensor, a display, a first microphone, and at least one additional microphone, comprising:

receiving, at said first microphone, at least one voice audio command together with ambient noise;

generating, at said first microphone, a first audio signal representative of said at least one voice audio command together with ambient noise;

receiving, at said at least one additional microphone, said ambient noise;

generating, at said at least one additional microphone, at least one additional audio signal representative of said ambient noise;

clarifying a portion of said first audio signal representative of said at least one voice audio command by utilizing said at least one additional audio signal;

communicating said clarified portion of said first audio signal representative of said at least one voice audio command to said software object;

5 processing, with said at least one software object, said communicated signal;
and

responsive to said processing of said signal, said central processing unit performing one or more actions.

25. A method for controlling a vehicle wheel alignment system having a central processing unit configured for processing voice audio signals, at least one alignment angle sensor, a display, and at least one microphone, comprising:

receiving, at said at least one microphone, one or more voice audio commands from a predetermined set comprising phonetically distinct voice audio commands;

communicating said one or more received voice audio commands from said at least one microphone to said central processing unit;

processing said communicated voice audio commands;

associating one or more actions with said processed voice audio commands;

and

responsive to said association, said central processing unit performing said one

20 or more actions.